

BOTANY — PAPER-I

Time — Three hours

Full Marks — 100

Answer to **Question No. 1** i.e. **MCQ** type questions under **Section-A** must be written in English only. Answers to other questions must be written either in English or in Bengali. It must not be answered partly in English and partly in Bengali. This instruction should be followed scrupulously.

The figures in the margin indicate full marks for the questions.

Candidates are required to give their answers in their own words as far as practicable.

SECTION — A

Answer all questions.

1. Select the single best answer and write it in the answer script putting option either (i) or (ii) or (iii) or (iv) as applicable : 20×1=20

Example :

Question : Haploid culture is being done from

- (i) Pollen (ii) Root tip
(iii) Shoot tip (iv) None of these

Answer : (i) Pollen

(a) Bacterial transformation was discovered by

- (i) Ederberg and Tatum
(ii) Beadle and Tatum
(iii) Griffith
(iv) None of them

[Turn over

(b) The viruses that live as parasites on bacteria are

(i) Fungi

(ii) Commensals

(iii) Bacteriophages

(iv) None of these

(c) Extra nuclear bacterial genetic material is called

(i) Nucleoid

(ii) Episome

(iii) Plasmid

(iv) None of these

(d) Hormogonia are vegetative reproductive structure of

(i) Spirogyra

(ii) Oscillatoria

(iii) Ulothrix

(iv) None of these

(e) Dikaryon is

(i) The presence of 2 haploid nuclei in a cell

(ii) The presence of 2 diploid nuclei in a cell

(iii) Presence of 2 nuclei, 1 is haploid and 1 is diploid

(iv) Both (i) and (ii)

(f) Development of gametophyte from vegetative cells of a sporophyte is called

(i) Apogamy

(ii) Apospory

(iii) Parthenogenesis

(iv) Apomixis

(g) Sporangia bearing leaf is called a

(i) Sorus

(ii) Sporophyll

(iii) Ramentum

(iv) Indusium

(h) 'Megasporophyll' is a term used in gymnosperm to denote

- (i) Carpel
- (ii) Stamens
- (iii) Leaves
- (iv) Female cone

(i) Coralloid roots are found in

- (i) Cycas
- (ii) Pinus
- (iii) Dryopteris
- (iv) Lycopodium

(j) Classification given by Benthum and Hooker is

- (i) Artificial
- (ii) Natural system
- (iii) Phylogenetic
- (iv) Numerical

(k) Feather stigma is present in

- (i) Pea
- (ii) Hibiscus
- (iii) Wheat
- (iv) Poppy

(l) Double fertilization is found in

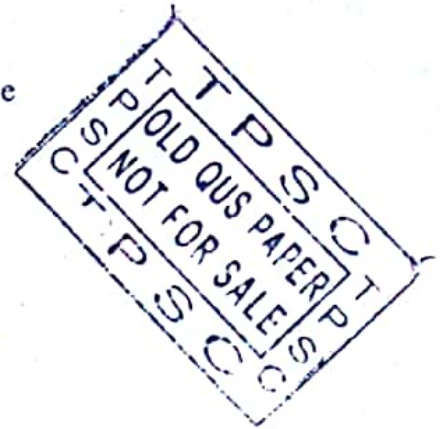
- (i) Bryophytes
- (ii) Angiosperms
- (iii) Gymnosperms
- (iv) Steridophytes

(m) Pith is produced by the activity of

- (i) Lateral meristem
- (ii) Protoderm
- (iii) Procambium
- (iv) Ground meristem

(n) The production of secondary metabolitics require the use of

- (i) Protoplast
- (ii) Cell suspension
- (iii) Meristem
- (iv) Auxillary bud



(o) Part of plant used for tissue culture is called

(i) Scion

(ii) Explant

(iii) Stock

(iv) Callus

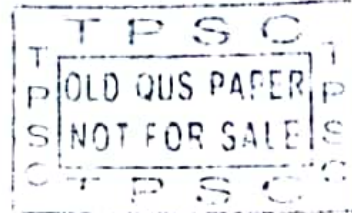
(p) In tissue culture medium, the embryoids formed from pollen grain is due to

(i) Organogenesis

(ii) Cellular totipotency

(iii) Double fertilization

(iv) Test tube culture



(q) Actinomycetes are

(i) Gram - ve, aerobic

(ii) Gram - ve, anaerobic

(iii) Gram + ve, aerobic

(iv) Gram + ve, anaerobic

(r) Perisperm is

(i) Outgrowth of outer integument

(ii) Surviving nucellus in the seed

(iii) Outgrowth of funicles

(iv) None of these

(s) 'Systema naturae' was written by

(i) Linnaeus

(ii) Charles Darwin

(iii) Aristotle

(iv) Wallace

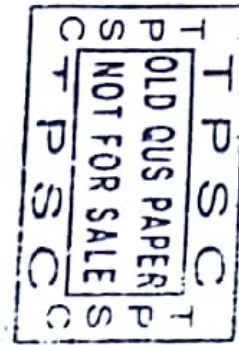
(t) Bacillus is

(i) rod shaped bacteria

(ii) spherical bacteria

(iii) spiral bacteria

(iv) none of these



6×5=30

SECTION - B

Answer any *six* questions from the following.

2. Differentiate transformation from transduction in bacteria. Mention the basic features of lytic cycle found in virus. 2+3=5
3. Name two fungal toxins related to pathogenesis. Add notes on plant quarantine. 2+3=5
4. Name the specialised aeration structures found in lichen thallus. Mention the medicinal importance of lichen. 2+3=5
5. What is 'Hunger Theory of Sex' in algae? Discuss how spwan is prepared in laboratory. 2+3=5
6. Write the basic features of ICBN. Mention two most advanced characters of Orchidaceae. 3+2=5
7. Mention the types of fossil according to the nature of fossilization. What is palaeopalynology? 4+1=5
8. How protoplast is isolated from an intact cell? Discuss briefly the protocol of protoplast culture. 2+3=5
9. Write sources of following plant products : 1×5=5
 - (a) Morphine
 - (b) Olive oil
 - (c) Camphor
 - (d) Quinine
 - (e) Reserpine.

SECTION - C

Answer any five questions from the following.

5×10=50

10. Discuss the role of microbes in antibiotic production. Describe the symptoms of Tikka disease of groundnut. Name the causal agent and control measures of this disease. 4+2+1+3=10

11. Mention the elementary processes involved in Telome theory. Discuss the origin of sporophyll in Sphenopsida and Filicopsida by the aid of Telome theory. 2+4+4=10

12. What are apospory and apogamy ? Discuss the causes of apospory and apogamy. 1+1+4+4=10

13. Mention the characteristic features of Bennettitales. Describe the flower of Cycadeoidea. 4+6=10

14. What are the nuclear aspects used in elucidation of taxonomic problems ? Discuss the chromosome number relationship with taxonomic groups. 3+7=10

15. Mention the salient features of Poaceae. Draw the floral diagram and floral formula of this family. Describe the capitulum inflorescence with diagram. 3+1+1+5=10

16. Describe the production of haploid plants from anther. Mention the importance of haploid plants. What are the hormones used in the medium for root growth ? 5+3+2=10

